

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Patent Application No. 09/888,656

REMARKS

Reconsideration and allowance of the subject application are respectfully requested.

Upon entry of this Amendment, claims 1-14 are pending in the application with claims 6-13 withdrawn from consideration as being directed to a non-elected invention. In response to the Office Action, Applicant respectfully submits that the pending claims define patentable subject matter.

Claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over newly cited Kusase et al. (USP 6,181,043; hereafter "Kusase") in view of newly cited Honda (JP 59-123438). Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kusase in view of Honda and Baines (USP 4,705,972). Claims 4 and 5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kusase in view of Honda, Baines and Seki et al. (USP 5,698,929). Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kusase in view of Honda and Hashida (JP 62-15810). Applicant respectfully traverses the prior art rejections.

By this Amendment, Applicant has amended independent claim 1 to improve clarity by reciting "said stator winding compris[es] a plurality of conductors including end portions joined to each other by a metal to form joint portions, wherein said metal is interposed between said end portions of said conductors without covering outer end surfaces and edges of said end portions and has a melting point which is lower than a melting point of said conductors."¹ Applicant

¹ See, for example, Figure 1 of the present application.

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respectfully submits that the combined references do not teach or suggest this feature of the claimed invention.

As shown in Figures 13-16, Kusase discloses a stator winding wherein end portions 433d of conductor segments are joined at a connected portion 433f which is ball-shaped (i.e., a liquid drop, a raindrop, or a flat ball) and has a smooth roundish surface. The connected portion 433f covers the edge and side surfaces of end portion 433d, thereby covering all sharp corner edges. The connected portion 433f is formed by dipping the end portions 433d in a tank 440 of melted solder 430. The end portion 433d is then taken out to coat the melted solder 430 on the end portions 433d. The melted solder 430 forms into the shape shown in Figure 13 by capillary attraction.

Honda discloses a water cooled rotor wherein pole portions of water cooled rotor windings composed of hollow copper strip through which cooling water can flow are connected by an interpole connecting member composed of hollow copper strip in such a manner that the hollow part of each connected portion becomes continuous. As shown in Figure 3, ends of a interpole connecting member 7 formed by a Y-shaped hollow conductor are connected to an end of a hollow winding 8a, an end of a hollow winding 9a and an end of a hollow winding 9b, respectively, by TIG welding or silver soldering.

With regard to independent claim 1, the Examiner maintains that Kusase discloses all of the features of the claimed invention except for the metal having a melting point which is lower than a melting point of the conductors, which the Examiner asserts is disclosed by Honda. However, Applicant respectfully submits that neither Kusase nor Honda disclose joining end

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portions of stator winding conductors with a metal which is interposed between the end portions of the conductors without covering the outer end surfaces and edges of the end portions, as required by the claimed invention. Rather, similar to the conventional stator winding shown in Figure 10 and discussed in the "Background of the Invention" section of the present application, Kusase teaches that the connection portion is formed to have a ball shape and cover the sharp corner edges and side surfaces of end portions of the conductor segments. Further, Honda (which the Examiner simply cites for disclosing the use of silver soldering in water cooled rotor windings) does not provide any teachings with regard to connection of conductors in a stator winding.

In addition, Applicant respectfully submits that one of ordinary skill in the art would not have been motivated to modify the connection (joint) portions of Kusase so that the metal joining the end portions of the conductors is interposed between the end portions without covering the outer end surfaces and edges of the end portions based on the teachings of the other cited references because (1) Kusase teaches away from this feature of the present invention, and (2) such modification would impermissibly change the principle of operation of Kusase's connection portions.² That is, the stated objective of Kusase is to eliminate the sharp edges of the joined end portions of the conductor segments because the sharp edges may cause concentration of mechanical stress and electrochemical stress, and facilitate accumulation of dust or foreign

² As set forth in MPEP 2143.01 if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

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particles.³ Thus, modifying the connection portions of Kusase so that the metal joining the end portions of the conductors is interposed between the end portions without covering the outer end surfaces and edges would completely defeat the stated objectives of Kusase's teachings and change the principle of operation of the disclosed structure of the connection portions.

Further, the teachings of Honda, Baines, Seki and Hashida do not provide any reasonable motivation to one of ordinary skill in the art to modify the connection portions of Kusase so that the metal joining the end portions of the conductors is interposed between the end portions without covering the outer end surfaces and edges of the end portions.⁴ For example, due to structural and operational differences, Honda's hollow rotor windings are connected in a manner which is inapplicable to conductor segments of stator windings. Similarly, Baines, Hashida and Seki provide no teachings with regard to connecting conductor segments of a stator winding. Instead, Baines and Hashida are directed to attaching a wire to terminal/contact and Seki is directed to joining an elastic element and a piezoelectric element.

Lastly, by this Amendment, Applicant has amended dependent claim 14 (which previously recited the metal is interposed between the end portions) to recite the joint portions have a continuous planar surface where the end portions are joined by the metal (see Figure 1 of

³ All of the embodiments disclosed by Kusase are directed to ball-shaped connection portions which cover the sharp corner edges and side surfaces of the end portions of the conductor segments.

⁴ To establish a *prima facie* case of obviousness under 35 U.S.C. § 103, there must be some suggestion or motivation to modify or combine the reference teachings. "To support the conclusion that the claimed invention is directed to obvious subject matter, either references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the reference." *Ex parte Clapp* 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

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the present application). Similar to claim 1, Applicant respectfully submits that it is quite clear the combined references do not teach or suggest this feature of the claimed invention.

In view of the above, Applicant respectfully submits that claims 1-5 and 14 should be allowable because the cited references do not teach or suggest all of the features of the claims, and one of ordinary skill in the art would not have been motivated to combine and modify the teachings of the cited references to produce the claimed invention.

Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: March 2, 2004

Attorney Docket No.: Q64995